

CLAIMS

1. In a sealed, nonaqueous electrolyte secondary battery having an outer casing which deforms as an internal pressure of the battery increases, said nonaqueous electrolyte secondary battery being characterized as using a material capable of storing and releasing lithium as the negative electrode material, and a mixture containing a lithium transition metal complex oxide and lithium cobaltate as the positive electrode material, said lithium transition metal complex oxide containing Ni and Mn as transition metals and having a layered structure.

2. The nonaqueous electrolyte secondary battery as recited in claim 1, characterized in that said internal pressure increase is caused by a gas generated in the battery while stored.

3. The nonaqueous electrolyte secondary battery as recited in claim 1 or 2, characterized in that said outer casing is formed at least partly of an aluminum alloy or laminated aluminum film with a thickness of 0.5 mm or below.

4. In a nonaqueous electrolyte secondary battery which has a rectangular shape and includes positive and negative electrodes each having a rectangular electrode face, said nonaqueous electrolyte secondary battery being characterized as using a material capable of storing and releasing lithium

as the negative electrode material, and a mixture containing a lithium transition metal complex oxide and lithium cobaltate as the positive electrode material, said lithium transition metal complex oxide containing Ni and Mn as
5 transition metals and having a layered structure.

5. A sealed, nonaqueous electrolyte secondary battery using a lithium transition metal complex oxide containing Ni and Mn as transition metals and having a layered structure, as the positive electrode material, and having an outer
10 casing which, when only said lithium transition metal complex oxide is used as the positive electrode material, is caused to expand by a gas generated in the battery while stored; said nonaqueous electrolyte secondary battery being characterized in that a mixture of said lithium transition
15 metal complex oxide and lithium cobaltate is used as the positive electrode material.

6. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 5, characterized in that said lithium transition metal complex oxide is represented
20 by the formula $\text{Li}_a\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$ (wherein a, x, y and z are numerical values which satisfy the relationships $0 \leq a \leq 1.2$, $x + y + z = 1$, $x > 0$, $y > 0$, and $z \geq 0$).

7. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 6, characterized in that
25 said lithium transition metal complex oxide contains nickel

and manganese in substantially the same amount.

8. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 7, characterized in that said lithium transition metal complex oxide has a mean
5 particle diameter of 20 μm or below.

9. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 8, characterized in that said lithium cobaltate has a mean particle diameter of 10 μm or below.

10 10. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 9, characterized in that said lithium transition metal complex oxide and lithium cobaltate are mixed together before they are mixed with a binder to fabricate the positive electrode.

15 11. The nonaqueous electrolyte secondary battery as recited in any one of claims 1 - 10, characterized in that said lithium transition metal complex oxide contains fluorine.

12. A method for reducing a gas generated in a
20 nonaqueous electrolyte secondary battery, while stored in the charged state, which uses a lithium transition metal complex oxide containing Ni and Mn as transition metals and having a layered structure, as the positive electrode material; said method being characterized in that lithium
25 cobaltate is mixed in said lithium transition metal complex

oxide.

13. The method for reducing gas generation as recited in claim 12, characterized in that said lithium transition metal complex oxide contains fluorine.